

CLAIMS:

1. A cell for metal electrowinning from metal ion solutions comprising a cathodic compartment containing a cathodic falling bed of growing metallic beads separated by the corresponding anodic compartment by means of an electrically insulating diaphragm, and a generally vertical external duct crossed by an upward stream of said metallic beads and of electrolyte directed to feed said falling bed.
2. The cell of claim 1 wherein said external duct is transparent.
3. The cell of any one of the previous claims wherein said cathodic compartment comprises at least one slanted sidewall.
4. The cell of any one of the previous claims wherein said upward stream is established by means of at least one ejector.
5. The cell of claim 4 wherein said cathodic compartment comprises two slanted sidewalls capable of conveying said metallic beads of said falling bed to the bottom.
6. The cell of claims 4 or 5 wherein said at least one ejector is positioned inside said external duct, in the proximity of its base.
7. The cell of claims 4 or 5 wherein said at least one ejector is positioned in the proximity of said bottom of said cathodic compartment.
8. The cell of claim 4 or 5 wherein said at least one ejector is positioned externally to the cell in fluid connection with said bottom of said cathodic compartment.
9. The cell of claim 8 wherein said fluid connection between said bottom of said cathodic compartment and said ejector is achieved by means of a junction tube.
10. The cell of claims 7 to 9 comprising a second ejector positioned inside said external duct, in the proximity of the base of said external duct.
11. The cell of claims 4 to 10 wherein said at least one ejector comprises one elongated nozzle mounted on a flange optionally provided with outlet openings suited to go against a duct.
12. The cell of any one of the previous claims comprising an external system of collection and selection of said growing beads.
13. The cell of any one of the previous claims wherein said diaphragm is

provided with perforations in correspondence of said cathodic falling bed of growing metallic beads permitting the free circulation of electrolyte between said cathodic compartment and the corresponding anodic compartment while preventing the passage of said metallic beads from said cathodic compartment to said corresponding anodic compartment.

14. An array of cells for metal electrowinning from metal ions comprising a multiplicity of cells of the previous claims in monopolar or bipolar hydraulic connection.

15. Use of the cell of any one of claims 1 to 13 or of the array of cells of claim 14 for the electrowinning of a metal selected from the group consisting of copper, tin, manganese, zinc, nickel, chromium and cobalt.

16. A cell for metal electrowinning, substantially as described with reference to the attached figures.